

150243

Wednesday, August 24, 2016 11:31:21 AM

N900040100

Setup Start *NS1*

Stop *NS2*

Start Date: 9/2/2016 **Start Qty:** 4.00 ***4***

Cust Item ID:

Required Date: 9/12/2016 **Req'd Qty:** 4.00 ***1***

Customer:

Reference:

Approvals: Process Plan: Date: AUG 26 2017

Tooling:

Date:

Run Start *NR1*

QC: 9-89 Date: SPC (Y/N):**SPC (Y/N):**

Date:

Stop *NR2*

[illegible]

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment ☐		No Re-verification ☐		Pressure/Forced ☐		Temperature/Cure ☐	
Design ☐		Operator ☐		Bending ☐		Set-up ☐	
Doc/Data ☐		Offset/Setup ☐		Centre Not Concentric ☐		BOM/Route ☐	
Equip/Tooling ☐		Supplier ☐		Cracks ☐		Broken/Damage/Defect ☐	
Handling/Pre ☐		Training ☐		Crimp/Kink/Ripple/Wave ☐		Inspection Incomplete/Unqualified ☐	
Material ☐		Use for Testing ☐		Cuffs ☐		Contamination ☐	
Internal Transport ☐		Poor Information ☐		Crushing ☐		Countersink ☐	
Tribal Knowledge ☐		Rushing ☐		Heat Treat ☐		Cut Too Short ☐	
LOA ☐		Product Improvement ☐		Wave/Twist in Tube ☐		Instructions Incomplete/Unclear ☐	
Substation ☐		Process Improvement ☐		Marks/Chatter ☐		Drill Holes ☐	
Past Expiry Date ☐		Manufacturing Process ☐		OTHER : _____			
Misidentified ☐		Past Due ☐					

Work Order ID 150243

Wednesday, August 24, 2016 11:31:21 AM

150243

Page 2

Item ID: D5122-1 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Center Support, Upper
 Start Date: 9/2/2016 Start Qty: 4.00 ***4*** Cust Item ID:
 Required Date: 9/12/2016 Req'd Qty: 4.00 ***4*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120 *120* QC Quality Control	QC8- Inspect parts - second check Memo	0.00 0.01		B. 16/10/05		8	φ		DAS 08 9-89
130 *130* Packaging Packaging	Identify as per dwg & Stock Location: _____ Memo LOCATION : LG054	0.00 0.01				8			DAS 6 9-89 OCT 06 2016
140 *140* QC Quality Control	QC21- Final Inspection - Work Order Release Memo	0.00 0.07							DAS 21 9-89 OCT 06 2016

16.10.6

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
Past Expiry Date ☐	Manufacturing Process ☐				
Misidentified ☐	Past Due ☐	OTHER :			

Picklist Print

Wednesday, August 24, 2016 11:31:21 AM

Work Order ID: 150243

150243

Parent Item: D5122-1

D5122-1

Parent Item Name: Center Support, Upper

Start Date: 9/2/2016

Required Date: 9/12/2016

Start Qty: 4.00

Required Qty: 4.00

Comments: IPP REV.A NEW ISSUE JFS 14/07/16 VERIFIED BY: DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D5122-1TRN		Manufactured	No			100	Each	4.0000	0.5	2 4			
D5122-1TRN									**			DAS 33 9.80	11/07/27
Center Support, Upper, Turning Detail													

Location

Loc Qty

Loc Code

MAT060

4

147268

4

4

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

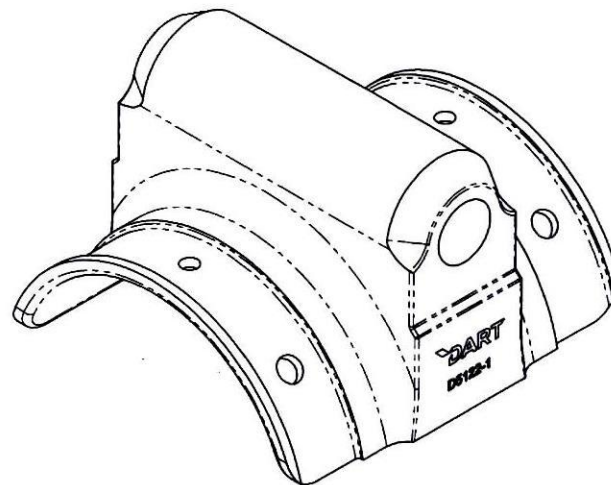


QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY							
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐	Power Loss/Surge	☐	Positioned Wrong	☐
Design	☐	Operator	☐	Bending	☐	Set-up	☐	Folio/Program	☐	Outside Dimensions	☐
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐	Grain	☐	Over/Under tolerance	☐
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐	Weld	☐	Part Incorrect	☐
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐	Wrong Stock Pulled	☐	Part Lost/Missing	☐
Material	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐	Out of Sequence	☐	Part Moved	☐
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐	Off-set	☐	Drawing	☐
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐	Mislabeled	☐	Finish	☐
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐	Fit/Function	☐	Misread	☐
Substation	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐	Misaligned/off center	☐	Turning Sequence	☐
Past Expiry Date	☐	Manufacturing Process	☐	OTHER : _____							
Misidentified	☐	Past Due	☐								



D5122-1 CENTER SUPPORT

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 150243 MJS
160826

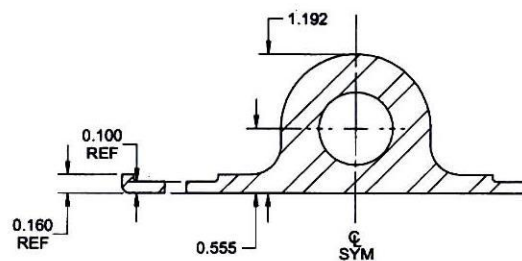
RELEASED
2014-08-25
[Signature]

NOTES:

- 1) MATERIAL: MAKE FROM D5122-1TRN
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART LOGO AND P/N "D5122-1" IN AREA SHOWN
USING 0.125 HIGH X 0.010-0.020 DEEP LETTERING PER DART QSI 044 6.3,
IDENTIFY WITH DART B/N PER DART QSI 044 6.1
- 7) WEIGHT: 2.13 lbs
- 8) ALL NON-DIMENSIONED FEATURES DEFINED PER DRAWING FILE "D5122-1-REVA.SLDPR1"

A		NEW ISSUE		AP	14.06.02
REV.		DESCRIPTION		BY	DATE
DESIGN	AP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA			
DRAWN	AP				
CHECKED	CP	DRAWING NO.		REV. A	
MFG. APPR.	JLM	D5122		SHEET 1 OF 3	
APPROVED	MP	TITLE		SCALE	
DE APPR.	DS	CENTER SUPPORT		NTS	
DATE	14.06.02	COPYRIGHT © 2014 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE SUPPLIER CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD			

APPROVED



SECTION A-A

HOLES PERPENDICULAR
WITHIN 0.005 OVER
ENTIRE LENGTH

R0.063
AROUND INSIDE EDGE

0.464 REF

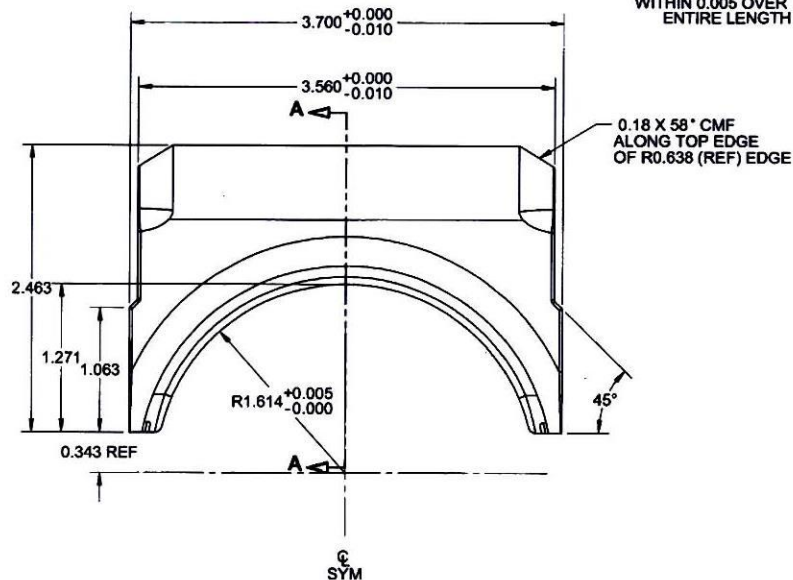
OPTIONAL Ø0.261 REF
TOOLING HOLE,
LOCATED AT 45° TO VERTICAL
4 PL

OPTIONAL Ø0.189 REF
TOOLING HOLE,
2 PL

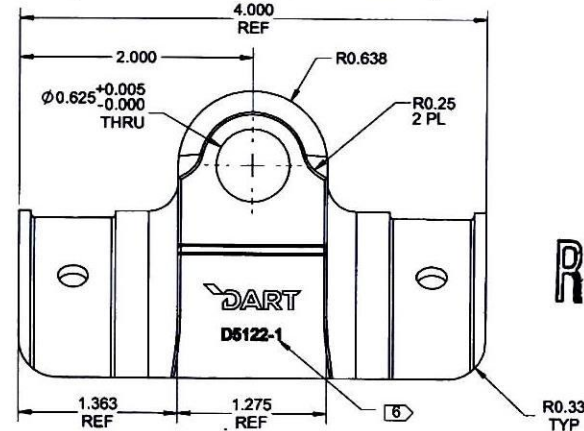
HOLES PERPENDICULAR
WITHIN 0.005 OVER
ENTIRE LENGTH

3.072 REF

4.000
REF



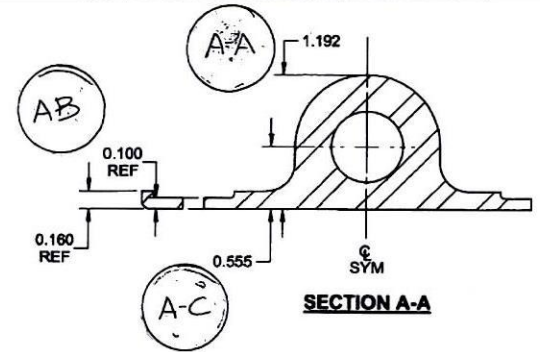
D5122-1 CENTER SUPPORT



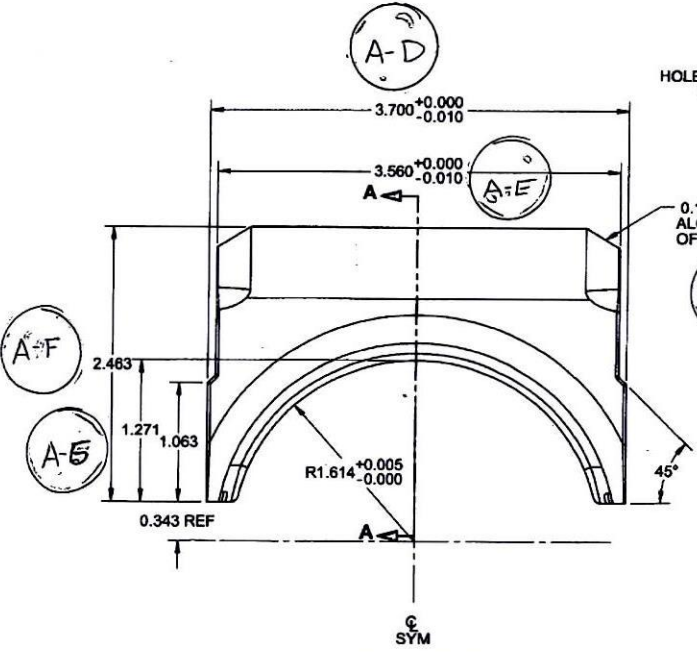
RELEASED
2014-08-25

APPROVED	DESIGN	AP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
	DRAWN	AP		
	CHECKED	CP	DRAWING NO.	REV. A
	MFG. APPR.	JLM	D5122	SHEET 2 OF 3
	APPROVED	MP	TITLE	SCALE
	DE APPR.	DS	CENTER SUPPORT	NTS
	DATE	14.06.02	COPYRIGHT © 2014 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

8 7 6 5 4 3 2 1



SECTION A-A



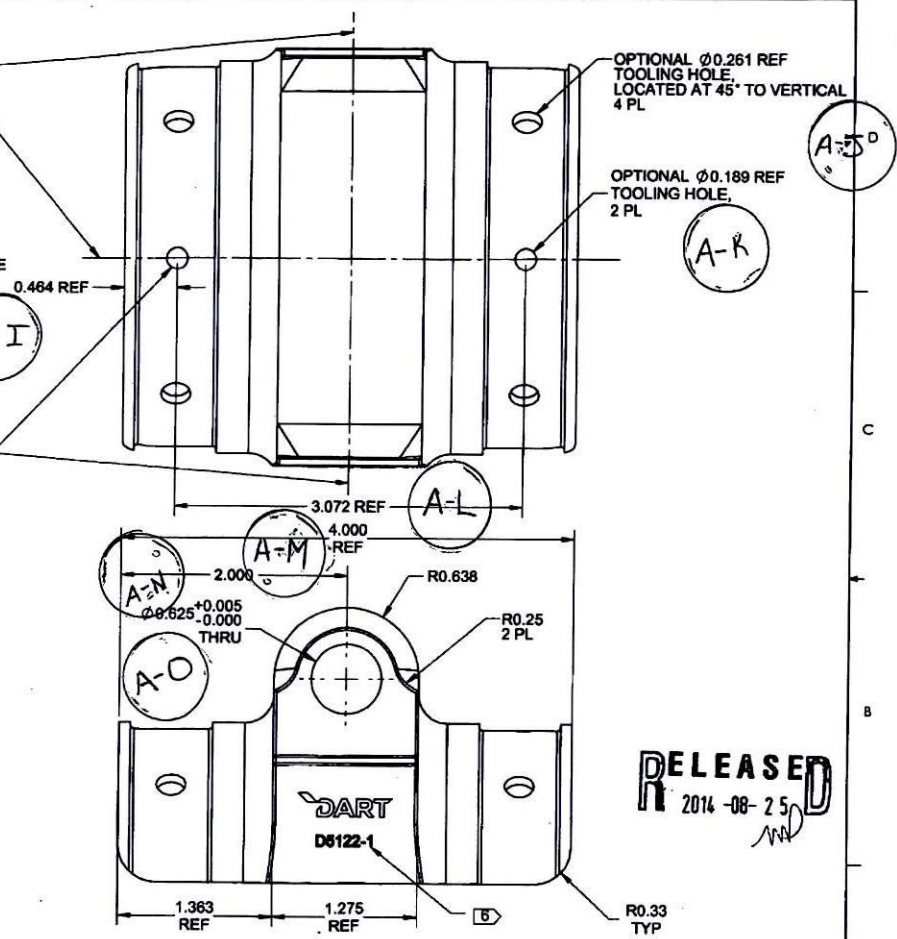
D5122-1 CENTER SUPPORT

HOLES PERPENDICULAR
WITHIN 0.005 OVER
ENTIRE LENGTH

R0.063
AROUND INSIDE EDGE

HOLES PERPENDICULAR
WITHIN 0.005 OVER
ENTIRE LENGTH

0.18 X 58° CMF
ALONG TOP EDGE
OF R0.638 (REF) EDGE



OPTIONAL Ø0.261 REF
TOOLING HOLE,
LOCATED AT 45° TO VERTICAL
4 PL

OPTIONAL Ø0.189 REF
TOOLING HOLE,
2 PL

RELEASED
2014-08-25

APPROVED	DESIGN	AP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
	DRAWN	AP		
	CHECKED	CP	DRAWING NO.	REV. A
	MFG. APPR.	JLM	D5122	SHEET 2 OF 3
	APPROVED	MP	TITLE	SCALE
	DE APPR.	DS	CENTER SUPPORT	NTS
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8 7 6 5 4 3 2 1

DART AEROSPACE LTD		Work Order: 150243
Description: Center Support		Part Number: D5122-1
Inspection Dwg: D5122	Rev: A	Page 1 of 1

FIRST ARTICLE INSPECTION DIMENSION SHEET

Dim	Min	Max	Go/No Go Gauge	Record Actual Dimensions				
				1	2	3	4	5
HAAS Section								
AA	1.182	1.202		1.190	1.189	1.190	1.189	1.189
AB	0.090	0.110		0.098	0.098	0.098	0.098	0.098
AC	0.545	0.565		0.552	0.552	0.552	0.554	0.555
AD	3.690	3.700		3.697	3.695	3.695	3.695	3.695
AE	3.550	3.560		3.555	3.554	3.555	3.555	3.555
AF	2.453	2.473		2.462	2.462	2.462	2.462	2.462
AG	1.261	1.281		1.273	1.273	1.273	1.273	1.273
AH	0.150	0.210		0.180	0.180	0.180	0.180	0.180
AI	0.454	0.474		0.460	0.460	0.460	0.460	0.460
AJ	Ø0.260	Ø0.267		Ø0.262	Ø0.262	Ø0.262	Ø0.262	Ø0.262
AK	Ø0.188	Ø0.194		Ø0.191	Ø0.191	Ø0.191	Ø0.191	Ø0.191
AL	3.067	3.077		3.071	3.072	3.072	3.072	3.072
AM	3.990	4.010		3.995	3.995	3.990	3.991	4.000
AN	1.990	2.010		2.000	2.000	2.000	2.000	2.000
AO	Ø0.625	Ø0.630		Ø0.627	Ø0.627	Ø0.627	Ø0.627	Ø0.627
AP								
AQ								
AR								
AS								
AT								
AU								
AV								
AW								
AX								
AY								
AZ								
Ensure that Ø " bore is perpendicular to " bore within " Accept/Reject 0.001 0.001 0.0045 0.0045 0.0015								

Measured by: DAS 33 9-89	Date: 16/09/28
Audited by: B.e DAS 08 9-89	Date: 16/10/05
Preliminary Approval:	Date:

Rev	Date	Change	Revised By	Approved
A	15.03.12	New Issue	KJ	

DART AEROSPACE LTD		Work Order: 150243
Description: Center Support		Part Number: D5122-1
Inspection Dwg: D5122	Rev: A	Page 1 of 1

FIRST ARTICLE INSPECTION DIMENSION SHEET

				Record Actual Dimensions				
Dim	Min	Max	Go/No Go Gauge	6	7	8		
HAAS Section								
AA	1.782	1.202		1.187	1.189	1.189		
AB	0.090	0.110		0.098	0.098	0.098		
AC	0.545	0.565		0.560	-561	-561		
AD	3.690	3.700		3.695	3.694	3.694		
AE	3.550	3.560		3.555	3.554	3.554		
AF	2.453	2.473		2.462	2.462	2.462		
AG	1.261	1.281		1.273	1.273	1.273		
AH	0.150	0.210		0.180	0.180	0.180		
AI	0.454	0.474		0.460	0.460	0.460		
AJ	Ø0.260	Ø0.267		0.262	0.262	0.262		
AK	Ø0.188	Ø0.194		0.191	0.191	0.191		
AL	3.067	3.077		3.072	3.072	3.072		
AM	3.990	4.010		4.000	4.000	4.000		
AN	1.990	2.010		2.000	2.000	2.000		
AO	Ø0.625	Ø0.630		-627	-627	-627		
AP								
AQ								
AR								
AS								
AT								
AU								
AV								
AW								
AX								
AY								
AZ								

Ensure that Ø " bore is perpendicular to " bore within "

Accept/Reject 0.004 0.045 0.003

Measured by: DAS 33 9-89 SL	Date: 16/07/28
Audited by: DAS 08 9-89 D.e	Date: 16/10/05
Preliminary Approval:	Date:

Rev	Date	Change	Revised By	Approved
A	15.03.12	New Issue	KJ	